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FEEDING PROBLEMS IN THE LUMBER CAMPS OF THE NORTHWEST[1]

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Lumbering is one of the most important industries of the far northwest. Washington, Oregon, and Idaho are widely considered the center of the world's lumber industry. The State of Washington leads the other two, having three hundred logging camps and eight hundred manufacturing plants. Washington alone has forests consisting of thirteen hundred billion feet of merchantable timber, and of seventeen hundred billion feet located in the mountains and at present considered unmerchantable. The indications are that the industry will be permanent, and the various lumbermen's associations are helping in this. The manufacturers, for instance, are holding frequent conferences and originating bills to be introduced into the legislature to save and perpetuate our forests. This industry, therefore, deserves our best efforts in the solution of its feeding problems.

In order to be of assistance in this work, we must first learn the conditions and problems with which the industry is contending. The writer had made a light survey of existing conditions. Personal inspection was made of camps, and data have been compiled from over forty questionnaires received from logging firms. The questionnaire took up the matter in detail, and consisted of forty questions.

[1] Presented at the Thirteenth Annual Meeting of the American Home Economics Association, Colorado Springs, June, 1920.

The camps are situated in the woods, miles from markets. This makes it necessary to have in the camp various types of men; it also makes the problem greater than if labor could be picked where living conditions are not difficult. Under normal conditions, practically all camps operate ten to twelve months and accommodate an average of eighty-five men. As the trees are cut the camps must move, and many of them stay only from two to four years in one location. This necessitates the building of portable camps, which are often wide car-like buildings constructed on wheels and easily moved by rail. These cars are well built, have ample room, and are usually kept very neat and clean.

The labor is cosmopolitan, consisting of Norwegians, Swedes, Americans, Poles, Italians, Austrians; or as one man puts it, "We employ every white race on earth." So far the colored and yellow races have not been used, except for general construction work especially in the building of railroads. Naturally such a group is hard to satisfy, and many of the camps are infested with obstructionists. One reply says, "They are the type that expect the best without reason." These men are unsteady, the average time at one camp being about six months, though cases are known where men have stayed ten years. There are also many timber tramps who go from camp to camp, staying one or two days until well fed, when they quit and go to town, or hire out at some other near-by camp.

Eight hours constitute a day's work, which is physically strenuous. It consists of rigging, felling, bucking, sawing, and loading. But all the men do not work conscientiously; as one large lumber company replied, "They all work eight hours, except the 'I. W. W.' and they don't want to work at all." Another firm sarcastically answered, "Yes, some work eight hours; others lazy on the job all day, just pretending to work."

Some companies believe that they must give the food the men want in order to hold them. Sometimes a company will spend more on food and make up the loss by paying the men less. The charge for meals to the men varies from 35 to 50 cents, the average being 49 cents, while the average cost to the companies is 46 cents. The questionnaires showed that 50 per cent were running their cook houses at a financial loss, one camp reporting a loss of $600 a month. A camp manager says: "Through this part of the country a large expense has been added to feeding the

men from the fact of each camp vying with every other to see who can feed the men the best, thinking by so doing they will be better able to retain their men. This is, to my mind, a mistake. What should be done is to standardize the food, giving the men good wholesome food, plenty of it and in good variety, well cooked and well served, everything clean and wholesome." Scientific and practical management can possibly remedy this, as there seems to be no reason why feeding the men should be a burden. The companies do not desire to profit on the meals but they do want to "break even." Beneficial suggestions on buying, cooking, and eliminating waste can come from our universities.

The menus are made out by the cook, who also does the ordering. The food is placed on the table, and the men help themselves. Dishes are replenished as soon as they are low. The proprietor of one camp says, "Plenty of everything is the only thing we go by." The breakfast menu generally includes cooked cereal with milk, sometimes cream; a meat, such as bacon or chops; eggs; biscuits; potatoes; milk and coffee; doughnuts; and fresh hot cakes. The hopeless attitude on the part of the management is shown by such remarks as: "It is not uncommon tc see a man eat six eggs and one pound of bacon, drink three cups of coffee, and leave the table grunting that the food is no good." For dinner, or noon-day meal, the men are served at least two kinds of meat, three kinds of vegetables, potatoes, pastry, pie, cake, pudding, cookies, milk, coffee, tea, hot breads or two kinds of bread. At supper, they eat a meat, usually steak or chops, with a cold meat too, potatoes, two vegetables, very often fruit cakes, and some pastry. The day's consumption of meat will average 16 ounces per man; of potatoes, 17 ounces; of coffee, 1 ounce. The main difficulty seems to be not in the quality but in having all the variety at one meal.

The buying is done principally through purchasing agents, storekeepers, and camp bosses. The quality is the best, although better selection according to food values and with the idea of having variety in the menu during the week and not all in one day would be an improvement.

It has been found difficult to offer the required number (5000 to 6000) of calories without having an excessive amount of protein in the diet. Associated with this is the habit of excessive meat consumption, which the men desire mainly for flavor. One questionnaire states as follows: "The working men of today demand the very best that money

will buy regardless of cost. We set a regular camp table as all logging camps do, so everybody can help himself to anything he wants. There is nothing wasted by the cooks but a great deal by the men themselves, as they figure on getting their money's worth. From the loss you can see that they are getting it." Another says: "We give them most everything the market affords, all kinds of fresh or salt meats, eggs, all the fresh milk they can drink, plenty of everything the season permits."

No butter substitutes are used, and, during the potato shortage, all camps served potatoes twice a day and a great many three times. Of the forty-two camps, all except four were using fresh fruits occasionally; twenty served no fresh milk and used canned milk only. Every camp has an excellent water supply from the mountain springs. Not only is the best of foodstuffs purchased, but the cooks are well paid. Wages range from $125 to $200 per month with living, while the average is $150. Helpers and dining-room workers receive an average of $80 a month.

The cooking is done in the movable cars already described. They average about sixty feet in length, and some of them show features of a modern hotel kitchen. There are cabinets for pastry and other foods, and the serving tables are covered with metal. The commissary cars have quarters for cooks at one end and a meat house at the other, while in the middle of the car are shelves and bins on metal rollers, and adjustable shelves for supplies in barrels. The meat rooms are equipped with galvanized iron screens and shutters on the outside to give shade.

Very few camps have cold storage facilities, and waste results from being unable to keep meats and other foods fresh. Every camp has its own store. More modern camps have theirs equipped with proper refrigeration where meats can be left until ready for camp. Most camps raise hogs which are a means of using the waste.

One of the most important needs is standardization of food. This will eliminate the continual moving on the part of the men. Camps, at present, are competing with one another for men by serving better food.

Another need is better management. Much can be accomplished by showing the value of coöperation between the cook and the buyer. It would result in better planning and more economical cooking, as the buyer is versed in prices. Substitutes for expensive foods could be made; the cost of different dishes could be accurately worked out; and

the buyer, who is often also the manager or owner, could watch waste and suggest improvements.

Better facilities are essential. Many camps have stores, electric lights, shower baths, and modern conveniences; they also should have better cooking apparatus. Ice plants would prove very valuable and would save waste. Left-over foods could be saved, and cool foods and drinks could be served cold. Labor-saving devices would not save labor cost, but they would enable the same help to apply more time to planning, and, in some cases, they would prove wise economy.

The government has discovered that the cafeteria plan is more economical. It should succeed in the lumber camps, although to start such a movement would arouse opposition. In cafeterias, men may order what they want, and regulate the size of the portions and the amount they spend for their meals. Against such a plan is the fact that the men are tired and would rather be served.

At the present time, there seems to be a gap between the university and the business world. This must gradually be eliminated and much has already been done along this line, especially in the commerce schools of the country. Coöperation between our department and the outside world can more quickly be accomplished by giving practical assistance.

The questionnaires show that the managers and superintendents are divided according to their attitudes or points of view. There are those who realize that the problem might be solved by scientific study, first, of cost accounting, second, of balancing of menus. There are those who, realizing that they are failing in feeding problems, would like to better conditions, but do not know how to proceed, and would have to be convinced that suggestions of the trained worker would benefit them. The defensive and skeptical lumbermen believe that what they are doing is better than that which any one may suggest.

For the trained worker in industrial camps, there is a wide field. The best opening would be in the camps that believe their problems can be solved. The University of Washington has been approached by one lumberman with the suggestion that his camp of seventy-five men could be used for an experiment by the trained worker. This illustrates that the lumberman, who is one of the most practical of business men is ready to grasp the opportunities at the university.

TRAINING GIRLS AS CONSUMERS[1]

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The factors involved in training girls as consumers and the best methods of teaching these factors are questions of importance in this age of economic unrest. We are responsible for providing all types of girls with this fundamental economic background; boys may also be included. Opportunities for teaching these factors are afforded in the unit courses in part time and evening schools, and in the day schools and colleges. The amount of time this training will require will depend upon the functioning knowledge of the evaluation of expenditures for various commodities that the girls previously gained. An analysis of the needs of the girls as consumers is our starting point. Job analysis, including the elements of the problems, the information needed, both pertinent and related, the standards and terms, is being thoughtfully applied to all phases of home economics teaching.

Girls may be divided into two groups according to the sources of their income: (1) those pursuing their education or staying at home, who depend upon allowances; and (2) those earning their living, who depend upon wages. An analysis of their financial obligations shows expenditures for clothing, food, housing, running expenses, and "higher life" or "greater happiness." A class of little girls interpreted the term "higher life" as meaning "heaven." Upon thoughtful consideration they decided that church, savings, better educational opportunities, and recreation meant "greater happiness."

All girls are primarily interested in their clothing. The girls' revision of their spending habits for clothing quickly brings forth convincing results. The clothing factor requires a detailed study of shoes, stockings, gauze underwear, corsets, underwear other than gauze, dresses, suits, hats, gloves, and other accessories. Evaluation of one article of clothing is sufficient subject matter for one or more lessons. Let us take the study of shoes as an illustration; the girls will need to consider the kinds, cost, use, style, make, quality, and care as influencing durability, appropriateness, and quantity. Illustrative material is invaluable, and can be obtained from the shops and the homes. Visits to the shops assist in teach-

[1] Presented at the meeting of the American Home Economics Association held in connection with the Division of Superintendence, N. E. A., Atlantic City, February, 1921.

ing shopping ethics, including methods of payment. Advertisements from newspapers and magazines and catalogs from mail order houses give information. The instructor has an opportunity to demonstrate principles of economics, art, and personal hygiene in her own costumes.

The value of each article of the wardrobe may be weighed in this manner. Evaluation of the time spent in construction, whether hand or machine, enters into the estimation. The girls may organize the data for each garment under selected headings and record it on library cards arranged alphabetically or according to topics. Helpful illustrations may be mounted on these cards. The data may be easily revised as the styles and prices change. A desire to learn how to buy clothes intelligently is readily developed when the girls are dependent upon wages or an allowance. The productive aspect enters, that is, the care and repair of clothing, and the construction when time permits. Proper care means a reduction of the number of garments required. Girls want to know just how they may meet their clothing needs and have money left for their other necessities. They now feel the need of personal accounts as proofs of their daily or weekly expenditures for clothing.

These lessons afford opportunity to use the socialized recitation. For example, a group of girls may be responsible for reporting data on sensible heels for shoes. The others, including the instructor, note the main facts presented by the chairman. The discussion leader finds the girls eager to tell vital points that may have been omitted or inaccurately stated. One test of the value of such an estimate of the wardrobe may consist in having the girls assemble a suitable wardrobe covering a period of possibly two years; another, the evidence of improvement in the personal appearance of the girls, showing an application of the principles of art, economics, and personal hygiene.

Evaluation of the necessary food intake confronts the girls. They need milk, vegetables, fruit, grain products, and fats; meat, fish and sugar are optional.[2] Most girls will eagerly determine whether they are underweight. Where time is limited, direct information on the variety, amount, and cost of food is needed. Habits of choosing nourishing foods are to be developed. A brief survey of some home economics college seniors proved that they had not formed the habit of the daily selection of adequate food in relation to its variety, amount, and cost. These students were asked to make food charts, listing in detail the varieties under each main division, and recording daily the variety,

[2] How Can Our Work in Foods be Made More Vital to the Health of the Child. Lucy H. Gillett, *Jour. Home Econ.*, Sept., 1920.

amount, and cost of their food intake. Such charts may include a record of the number of meals eaten per day and the time spent in consumption. Again, personal accounts serve as proofs of the daily expenditure for food. The simple "food intake" cards are being used successfully with younger girls. Since good health depends not alone on intelligent food habits, other items may be added to the cards, for example, the number of hours for sleep, recreation, and work; the daily bath, the daily evacuation, the daily water intake. For if a girl is to make her limited allowance of wages cover her necessities she must develop good health habits in order to reduce the amount spent for medicines and doctor's services. Good health habits may also increase the girl's productivity.

Girls may have to consider expenditures for housing facilities. What kind and how much does a girl need? Minimum standards call for a portion of a simple, sanitary, and artistic bedroom, and a proper recreation unit aside from the bedroom. Storage space is a welcomed asset. Evaluation of the bedroom equipment may be developed and recorded on cards in the same detailed manner as the necessities of the wardrobe. This method of evaluating bedroom furnishing may be applied to all household furnishings. Light, heat, ventilation, and proximity to the school or work are essential considerations. Theoretical knowledge of taxes, mortgages, and other business transactions may be considered under the investment factor.

Girls' running expenses may cover a wide range of items, such as carfare, postage, cleansing materials, and cosmetics. Again they will need to weigh values based upon kinds, uses, amounts, cost. For example, an analysis of the selection of cosmetics revealed the need for reapportioning expenditures for the quantity and kinds formerly thought necessary. Data for the running expenses may likewise be kept on cards.

When girls have completed their first estimates for their clothing, food, shelter, and running expenses, they invariably find that they do not have an adequate amount left for the last factor—"greater happiness," or advancement. They find that they must go over their record cards for each division of their income and apply the elimination or reduction process, cutting down on the amount and kinds of different commodities formerly felt to be indispensable. Several revisions are needed to provide the desirable balance. Expenditures for "greater happiness" are partly determined by the influence and economic status of the community. It is necessary to obtain a basis for discussion by having the girls keep a record, for some weeks previous, of the amounts expended for church,

savings, educational advancement, and recreation, including movies, parties, and ball games. The amount spent for recreation is usually out of proportion to the amounts set aside for church, savings, thoughtfulness toward others, and education. A girl who has worked hard to revise her ideas of the amount and kind of commodities she needs and can afford, in order to have a balance left for "greater happiness," is usually keen to analyze and revise her expenditures for recreation. Attention drawn to the provision of recreation for the mother often increases the girl's zeal in investigating kinds of wholesome recreation that are possible without excessive cost. Wisely selected reference and illustrative materials are needed. Coöperative contacts with church, business, and educational and social organizations are indispensable in helping girls to evaluate the constituents of "greater happiness." These contacts should provide opportunities for the girls to participate in the activities of these organizations as well as to receive information from the leaders of these community assets. Again the card system is effective for recording data for each topic considered. For example, the topic of investment will necessitate a card record for each investigation made, such as data on banking facilities, building and loans, bond issues.

Laborious methods of keeping personal accounts defeat their own purpose. Daily expenditures for commodities may be jotted down, at the time of purchasing, on a small card kept in the girl's pocket book. These items may be totalled daily or weekly on a summary card ruled so as to cover a record of a month's expenditures. A simple summary card may contain one column for the days of the month; several columns with self explanatory headings, covering the girl's classified needs, e.g., room rent, food, clothing, laundry, traveling expenses; a column for daily totals; and one for all money available. Girls need considerable assistance in forming the important habit of systematically balancing these accounts at definite intervals. For upon this factor, that is, checking the leaks, rests one of the greatest benefits of account keeping. By analyzing the total expenditures under each main heading and comparing them with amounts set up by statisticians as being in correct proportion to the total budget, the girls are stimulated to decrease expenditures for personal purposes and increase the amount for savings and thoughtfulness toward others.

We all realize that women are taking their places in the world in ever increasing numbers; that they need a strong background in economics to support their ever increasing responsibilities. Since the girls are our women of tomorrow, let us avail ourselves of every opportunity for affording them this vital economic foundation.

THE SCHOOL PROJECT[1]

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It has been said that home economics is an ideal "project subject," that it lends itself readily to this method; nevertheless we approach the subject as warily as teachers of other subjects, and it takes a real jolt to startle us into the realization that we need to change our point of view.

The jolt has come gradually through the realization of the facts that much that is taught in the schools fails to carry over into the lives of the girls whom we teach; that the enrollment in our high school classes has been, in many cases, on the decrease in the last few years; that the aims set down by educators somehow fail to reach and influence every-day teaching.

The project is far from being a remedy for all our ills but it is fair to say that good project teaching, consistently dominating class-room procedure, has a very definite influence on these conditions, for good project teaching demands contact with the home. Home projects become by-products of school projects. Project teaching meets the matter of the decrease in enrollment by demanding a careful study on the part of administrators of the particular interests and instincts of girls at different ages. It broadens and enriches our aims by virtue of being a project, in the sense that is meant by those educators who say that the project aims to produce individuals who are able to meet life situations adequately.

I like to think of the project as a point of view. When our teachers of home economics grasp the spirit of project work it will be unnecessary to seek for definitions. The idea is flexible and allows for interpretation, the various interpretations depending upon the personality and type of mind of the teacher and her students.

If we are going to approach our work from this point of view an entire reorganization is necessary in our thinking. The child, rather than the subject matter becomes the center of interest; and we use our logical outline to keep us on the track as it were, and to safeguard minimum essentials.

The following projects have been carried on with varying degrees of success in Wisconsin:

[1] Abstract of address at the meeting of the American Home Economics Association held in connection with the Division of Superintendence, N. E. A., Atlantic City, Feb., 1921.

A seventh year project: "A Saturday morning project." To find out the best and quickest ways of doing those things on Saturday morning which are our share in the business of homemaking.

An eighth year project: To ascertain whether or not the girls in this class are eating the right kind of food, and to plan and prepare wholesome meals for eighth grade girls.

A ninth year project: To determine the minimum amount that is needed per day in this town to feed a family of four consisting of father, mother, a boy of 12, and a girl of 14.

A tenth year project: To make a two weeks' study of the best way to put on a successful school lunch in this school, and to put our plans into practice during the months of December, January, and February.

J. A. Moore gave the following test of a project in a recent number of *School and Society*: "A project expresses a felt need growing out of the environment. It recognizes the native instincts and interests of the pupils. It calls for related material. It provides for organization on the part of the student."

Our child-care project, "What must a seventh grade girl know about the mental and physical care of the child in order to take care of her baby sister," measures up to the test in this way: It meets a felt need growing out of the environment, in that most seventh grade girls have little brothers and sisters at home, or occasionally help a neighbor by caring for the baby. It recognizes the instincts and interests of the pupils because these girls are near enough to the doll stage to be intensely interested in babies and their care. The problems discussed from day to day call for related material from various fields, child psychology, citizenship, social relationships, and social hygiene. That it provides for organization on the part of the student is shown by the following story:

A seventh grade student reported in class one day that the woman who lived next door to her did not know how to bathe her baby. "She just puts her in the tub and splashes water on her," the child continued in a shocked voice. Several days later she brought the matter up again in class, saying, "that woman moved away from our street and I got to thinking how badly she bathed her baby, and I just went down and showed her how."

THE HYGIENE OF WOMEN'S UNDERWEAR[1]

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Owing to the lack of reliable data on the hygiene of clothing, the following experiments, on the conduction of heat by textile fibers and the relative rate of absorption and evaporation of water, have been made to substantiate or disprove the theories regarding the influence of weave and fiber on the hygienic qualities of certain fabrics.

Stockings were selected as the material to be tested because these were available in several fibers in the same weight and weave. In the experiments showing variation in the proportion of two mixed fibers in a fabric and the influence of weave in the same fiber, bags were made of the materials used.

The method of procedure was as follows: Hot water was poured into bottles which contained 1000 cc. The stockings or bags were placed on the bottles and were held tight to the necks of the bottles with elastic bands. One uncovered bottle was used in each experiment as a check. Rubber corks, through which thermometers were run, were fitted into the bottles and the temperatures were taken at fifteen minute intervals.

In the experiment performed to compare the rate of heat conduction of fabrics made from different fibers, stockings of wool, silk, and cotton in both heavy and light weights were used. The bottles were of uniform size, and the area covered on each bottle was 100 square inches. The weight of the material actually covering the bottles was ascertained, and the number of holes per square inch of material were counted under the microscope. The experiment was performed three times with water of different temperatures. The results showed heavy wool to be the poorest conductor of heat, then light wool, heavy silk, light silk, heavy cotton, and light cotton in the order mentioned.

Heat is lost more rapidly on a cold day than on a warmer one, since on a day with a temperature of 12°C. it took only two hours and forty-five minutes for water of 78°C. to reach 41°C., and on a day of 18°C. it took three hours and forty-five minutes for water to drop from 84°C. to 41°C., or three hours and fifteen minutes from 78°C. to 41°C. It took forty minutes longer for heavy wool to reach the same temperature as cotton. This emphasizes the necessity for dressing warmer on a cold

[1] Summary of experiments reported at the Thirteenth Annual Meeting of the American Home Economics Association, Colorado Springs, June, 1920.

day in order to maintain a constant body temperature when heat is being lost rapidly. The small serrations on the surface of the wool fiber make it possible for wool in some weaves to entangle a large amount of atmospheric air, which is a non-conductor. The fibers with the smoother surfaces are better conductors of heat.

Since ventilation will hasten heat loss, an experiment was performed to compare the relative rate of heat conduction of silk and cotton in moving air. The materials used were silk and cotton stockings of the same weight and color. The experiment was performed according to directions given previously for the experiment on heat conduction. In addition, the bottles covered by the silk and the cotton stockings, and the check bottle were placed in a row two feet in front of an electric fan. The experiment was performed three times. The results showed that heat was lost more rapidly by silk than by cotton when the surrounding air was in motion. The conclusion may be reached that cotton would afford more protection on a windy day than silk, for the silk fiber has a smoother surface than the cotton fiber, and moving air can fan through the meshes of silk more easily than through cotton.

To compare the effect on conduction of heat by the variation in proportion of two mixed fibers in a fabric, the materials tested were flannel composed of all wool, two-thirds wool and one-third cotton, and one-third wool and two-thirds cotton. The experiment was performed three times with water at different temperatures. The results showed all wool flannel to be the poorest conductor of heat, then flannel of two-thirds wool and one-third cotton, then flannel of one-third wool and two-thirds cotton. The value of flannel in the retention of heat varies with the amount of wool present. The flannel containing the largest per cent of wool is the warmest.

To show the influence of variation of weave with the same fiber, the plain weave, knit weave, and basket weave in cotton were selected, as they are the weaves used in underwear. The experiment was performed three times with water at different temperatures. The plain weave is the poorest conductor of heat, then the knit weave, then the basket weave. This shows that material which is woven in such a way as to have open air spaces is a good conductor of heat. If the air spaces are not open, but are more or less covered with interlacing threads, atmospheric air is entangled in these spaces and this makes the garment a poor conductor of heat. If the material on the bottles had been cov-

ered with a thin layer of closely woven cloth, the results would have been reversed, as the larger spaces would have held more air and therefore the material would have been a poor conductor of heat in proportion to the air held.

In order to determine the relative rate of absorption of water by different fibers, and the relative rate of evaporation of water from these fibers, experiments were made with wool, silk, linen, and cotton, using materials of as nearly the same weight and weave as possible. These were cut into wicks 3 inches long and 1 inch wide.

Water was put into beakers so that the distance from the water to the tops of bulbs of thermometers suspended above was $1\frac{7}{8}$ inches. The wicks were sewed on the bulbs of the thermometers and the ends immersed in water. The time interval required for the water to reach the bulb was noted for each fiber; this showed the relative rate of absorption. From the time the wick was wet, the thermometer readings were taken at ten minute intervals for each of the fibers, so that the relative rate of evaporation of water could be ascertained by the lowering of the temperature. The experiment was performed three times. Water evaporated most quickly from linen, then silk, cotton, and wool.

The linen absorbed water most rapidly and the water evaporated from it most rapidly, lowering the temperature. This shows that linen is the coolest material in dry climates. Wool absorbed water very slowly and water evaporated from it slowly. This shows that wool is a warm material to wear. Silk and cotton, which absorb water at a moderate rate, are suitable materials for ordinary conditions. Of these two fibers, cotton is more practical as it is not so expensive as silk and is more easily cleaned.

The rate of absorption for the part of the wick sewed tight on the bulb ($\frac{7}{8}$ inch) was much slower than that from the water to the bottom of the bulb (1 inch). This would indicate that perspiration is not so readily absorbed by tight clothing as by loose.

Another experiment was made to show the relative rate of evaporation of water from textile fibers and the consequent lowering of temperature. Wool, silk, cotton, and linen of as nearly the same weight and weave as possible were made into bags.

The method of procedure was the same as in the experiment on conduction of heat. Then the experiment was repeated, using the same bags, and water of the same initial temperature. Burettes containing

water of the same temperature as that in the bottles were suspended above the bottles, and the stopcocks were so regulated that water dropped at intervals of two seconds on the bottles under the coverings.

The results showed that the water in the bottles was cooled faster when water was dropped from burettes on the bottles than when it was not. They also showed, by the lowering of the temperature, that water evaporates most quickly from linen, then silk, cotton, and wool. The lowering of temperature was noticeable soonest in linen and last in wool, which shows that linen is the coolest material to wear and wool the warmest. Conduction is less in wet goods than dry. Since the water in the bottles cooled in ten minutes less time when water was dropping from burettes, it seems probable that heat was lost by conduction as well as by evaporation. The coverings presented very nearly the same area of surface exposed to unsaturated air, and for this reason evaporation would be approximately uniform no matter what the material.

EXPERIMENTS IN THE MAKING OF DOUGHNUTS OF LOW FAT ABSORPTION[1]

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PART I

How much fat should a pound of dough reasonably be expected to take up in frying? Numerous experiments performed in the Experimental Kitchen of the Office of Home Economics in which batters and doughs were fried in deep fat under varying conditions, show that the fat absorption varies greatly in amount upon various occasions. Twenty pounds of dough may be so made up and fried as to take up ten pounds of fat in frying, or so made up and fried as to take up only one pound of fat. The fat absorption of the average homemade doughnut of good quality lies between these two extremes.

[1] Published by permission of the Secretary of Agriculture.

This is the second report from the Experimental Kitchen laboratory on the subject of fat absorption during frying in deep fat. See *Journal of Home Economics*, March, 1920, for first report.

Can a good quality of homemade doughnut be made which will be low in fat? This is a question of interest to many who profess a fondness for doughnuts, crullers, fried cakes, or fritters, yet who often find the excess of fat in such foods difficult to digest—if not to pay for!

This article reports experimental work in the frying of doughnut mixtures under varying conditions with especial reference to securing a product of low fat absorption, which shall yet be tender and have good keeping qualities.

Since it was shown by the work of Miss McKee,[2] and fully confirmed by our experiments reported in the JOURNAL for March, 1920, that the fat absorption is increased by increase of fat and sugar in the dough, the attempt was made to develop a doughnut containing a low amount of fat and a fairly low amount of sugar that would yet retain the desirable qualities of the homemade doughnut.

"Standard" recipe

This mixture was adopted as a control for comparison with other experimental doughs; but the term "standard" was not intended to denote superior quality of product, since the product resulting from other formulae was often preferred to this one.

Ingredients	*By measure*	*By weight grams*
Sugar	1 cup	200
Butter	2 teaspoons	10
Eggs	2	96
Milk	1 cup	244
Flour	5⅛ cups	580
Baking powder	4 tablespoons	36
Salt	1 teaspoon	5
Cinnamon	1 teaspoon	2
Nutmeg	½ teaspoon	1½

An amount of baking powder equal to one-sixteenth of the weight of the flour was selected as the measure for the standard recipe; this corresponds to about 2 teaspoons (level) of baking powder for each cup of flour. When a smaller quantity of baking powder (cream of tartar type) was used, the doughnuts showed a slightly lower fat absorption per unit weight of dough, but the volume and texture were not so good. No further experiments with different brands or amounts of baking powder were undertaken.

The average absorption of doughnuts made by this formula, fried (as soon as possible after mixing) for 3 minutes at a temperature of 185°C., turning each doughnut at least once during frying to insure equal brown-

[2] Fat Absorption in Frying Doughnuts. Mary C. McKee, *Jour. Home Econ.*, Jan. 1918.

ing of both sides, was 24 per cent. This figure is obtained by dividing the amount of fat absorbed during frying by the weight of the dough before frying. The fat content of a single "standard" doughnut of 35 grams weight after frying was about 8 grams, or about two-thirds of a tablespoon. These figures, however, as well as the time of frying, can easily be varied by changes in manipulations, or by changing the size and shape of the doughnut.

Manipulation. Standardization of size and shape. It was found that in calculating fat absorption on a small number of doughnuts, such as a single frying of four or five, any marked deviation in size and weight of the doughnuts caused a variation in the absorption of fat. It was hardly fair, for instance, to compare on the same basis a lot of four doughnuts weighing 153 grams with a lot weighing 109 grams, since the amount of surface exposed to the fat was greater in proportion to the total weight in the doughnut of low weight. One method used to overcome this difficulty consisted in a rigid standardization of size, shape, and weight. The dough was patted or rolled to ¼ inch thickness on a molding board in a frame designed for this purpose, and then cut with a doughnut cutter 3 inches in diameter with a center hole of 1¼ inches diameter. Great pains were taken that the doughnuts should not stick to the board, or stretch out of shape during handling. The doughnuts were fried in lots of four; each doughnut was required to weigh not more than 34 grams, nor less than 30 grams before frying, and was rolled to approximately the same thickness and shape.

This rigid standardization of shape, size, and weight of the doughnuts, while intended to give a fair basis for comparison, nevertheless, as might be expected, did not produce a doughnut of uniformly good quality. Furthermore, it was found that the first doughnuts fried out of a given lot of dough, viz., those in which the dough had stood for the shortest possible time and had received the least possible manipulation, attained a consistently higher absorption of fat, along with a greater tenderness of texture, than was the case with those from subsequent rollings of the same dough.

When working for strictly comparable results, it was often a practice to allow all doughs to stand for two hours after mixing and before rolling in order to do away with deviations due to the "ripening" of the dough in case of the last batch, which must stand a few minutes while the first batch is being rolled and fried. If all the dough stands for a considerable period, the influence of these few extra minutes of waiting is negligible.

The doughnuts, which upon weighing were shown to be either too heavy or too light to conform with the standard, had to be returned to the batch of dough and again rolled and cut. Sometimes this necessitated three or four rollings. The dough which received this additional handling showed always a lower fat absorption than the dough more lightly handled. This accounts in part for the deviations in fat absorption, which are so often noticeable in different lots of the same batch of dough fried under otherwise similar conditions.

In order to do away with the deviations due to overhandling, strict comparisons as to the effect of varying ingredients could be made only between those doughnuts which had not been rehandled in any way.

A second method used when attempting to secure fairly comparable results; or, the "home method." In order to obviate so far as possible these two causes of variation (overhandling and ripening of the dough) the whole batch of dough, made from about 10 ounces of flour (half of the formula given above), was weighed and rolled quickly to uniform thickness; the doughnuts were cut and fried without further effort to secure a standardization of the size and weight of each doughnut. The amount of fat absorbed was then estimated on the whole quantity of dough fried. Often 16 or more doughnuts (4 fryings or a greater number) were estimated as one lot. The per cent of fat absorbed did not differ greatly from the results obtained by averaging the absorption of the first frying with the later fryings of a given lot of dough. The weight of six doughnuts, selected at random from a lot which had been cut and fried as above, varied from 41 to 51 grams each (weight after frying); but such discrepancies in weight of the individual doughnuts are presumably "evened up" when a large number are estimated as one lot. Furthermore, this method of work has the advantage of simulating closely the methods used in the average household, where, as a rule, extra manipulation of the dough is carefully avoided.

A record was kept of the length of time and the conditions under which the dough stood before frying, the time ranging from the very brief interval which would necessarily elapse between making and frying, when working rapidly up to the extremely long interval of 24 hours. As a rule the doughnuts were strictly standardized with respect to size, weight, and the number fried at a time, four constituting one lot. In very few cases were fewer than four doughnuts fried at a time; and in a number of cases (experiments 18 to 20 E and 22 to 26) the "home method," described in the preceding paragraph, was used. In some of the experi-

ments the dough stood at room temperature, but in other tests, as noted, it was kept in a refrigerator. In only three of the experiments reported in the table (experiments 15, 16, and 17) were the doughnuts kept submerged.

Duplicate tests do not invariably show close correspondence in figures for fat absorption, in case of doughnuts, because of the difficulty of securing comparable shape, size, and weight, without overmanipulation, as mentioned above. It is, therefore, necessary to repeat experiments a number of times and to vary them in many different ways, before definite conclusions can be drawn. In the course of over two hundred experiments in which many different recipes were tested, certain standard proportions were selected (as explained above) as a basis for comparative tests. Only those tests in which all data were strictly comparable (consequently only a few series from the total number of series) have been selected for the tables given below. Lack of space prevents the presentation of so large an amount of experimental data as would be included if we gave the results of our tests with all the recipes we have tried.

TABLE 1

Summary of certain data obtained when frying doughnuts, selected as being strictly comparable

RECIPE AND PROCEDURE	TIME DOUGH STOOD[a]	TEMPERATURE OF FAT IN FRYING	TIME FRIED	FAT IN DOUGH (CALCULATED)	FAT ABSORBED (OBSERVED)	WATER LOST (CALCULATED)	FAT IN FRIED DOUGHNUTS (CALCULATED)
	hours	*deg. C.*	*minutes*	*per cent*	*per cent*	*per cent*	*per cent*
Standard proportions: (see p. 256)[b]							
Experiment 1[c]	At once	185	3	3.0	23.0	13.0	23.0
Experiment 2 (average of 5)	1½	185	3	3.0	21.6	12.4	22.0
Experiment 3	2	170	3	3.0	22.0	12.0	22.0
Experiment 4	2	205	2	3.0	15.0	10.0	17.0
Experiment 5	Overnight	185	3	3.0	10.0	14.0	13.0
Standard proportions soft wheat flour:							
Experiment 6 (average of 2)	At once	185	3	3.0	24.5	13.0	24.0
Experiment 7 (average of 5)	1½	185	3	3.0	21.6	12.4	22.0
Experiment 8 (average of 2)	2	185	3	3.0	18.0	11.0	19.0
Experiment 9	2½	210	2	3.0	14.0	12.0	16.0
Experiment 10	3½	185	3	3.0	22.0	10.0	22.0
Experiment 11	Overnight	185	3	3.0	10.0	13.0	13.0
Standard plus 224 grams hot riced potato:							
Experiment 12	½	185	3	2.5	17.0	15.0	19.0
Experiment 13	2½	185	3	2.5	20.0	20.0	22.0
Standard plus 224 grams potato, 100 grams sugar:							
Experiment 14 (average of 2)	2	185	3	2.4	23.5	20.0	24.0

TABLE 1--*Continued*

RECIPE AND PROCEDURE	TIME DOUGH STOOD[a]	TEMPERATURE OF FAT IN FRYING	TIME FRIED	FAT IN DOUGH (CALCULATED)	FAT ABSORBED (OBSERVED)	WATER LOST (CALCULATED)	FAT IN FRIED DOUGHNUTS (CALCULATED)
	hours	*deg. C.*	*minutes*	*per cent*	*per cent*	*per cent*	*per cent*
Standard plus 224 grams potato; fried submerged:							
Experiment 15[d]	At once	205	1	2.5	10.0	10.0	12.5
Standard plus 224 grams potato; fried submerged:							
Experiment 16	At once	185	1½	2.5	12.0	13.0	15.0
Standard; fried submerged:							
Experiment 17		185	1½	3.0	13.0	10.0	15.0
Standard; fried by "home method" (see p. 258):							
Experiment 18	1	185	3	3.0	22.0	14.0	23.0
Experiment 19	3	185	3	3.0	17.0	20.0	20.0
Experiment 20[e]	3	185	3	3.0	10.0	18.0	14.0
Standard proportions soft wheat flour:							
Experiment 21[e]	3½	185	3	3.0	16.0	13.0	18.0
Standard; yeast instead of baking powder; kneaded slightly; fried by "home method:"							
Experiment 22[e]	3	185	3	3.0	7.0	9.6	10.0
Standard (baking powder) plus 224 grams potato; kneaded slightly; fried by "home method:"							
Experiment 23[e]	At once	185	3	2.5	13.0	13.0	15.5
Standard minus 100 grams sugar; fried by "home method:"							
Experiment 24	At once	185	3	3.6	18.0	18.0	21.0
Experiment 25	½	185	3	3.6	10.0	12.0	13.0
Experiment 26	½	210	2	3.6	11.0	9.0	14.0

[a] In experiments 5, 7, 10, 11 and 14 the dough was kept in a refrigerator before frying; in all other experiments, at room temperature.

[b] Unless otherwise stated, hard wheat flour was used in all the experiments reported.

[c] Four doughnuts weighing 30 to 34 grams as dough were fried at a time in experiments 1 to 12, 14 to 15, and 18; three doughnuts in experiment 13; and nine to sixteen in experiments 17 to 20 and 22 to 24 inclusive. Four doughnuts were fried in experiment 16, but they were not of standard weight.

[d] In experiments 15, 16 and 17 the doughnuts were kept submerged during frying; in all other cases they were allowed to float after coming to the top.

[e] In experiment 21 part of the dough was overmanipulated; in experiments 20, 22 and 23 it was kneaded slightly. In all other cases it was manipulated uniformly according to standardized procedure.

FOR THE HOMEMAKER

BOTULISM AND HOME CANNING[1]

Foreword

MINNA DENTON

Botulism ("sausage poisoning") was first studied in Germany, and was supposed to be due solely to the eating of meat which had spoiled as a result of the growth of the Bacillus botulinus. A few years ago, American bacteriologists, who were studying the subject of food poisoning in our western states, found that Bacillus botulinus develops in canned vegetables, and even in canned fruits, as well as in sausage or in canned or brined meat. It has been shown also that there are two different types of Bacillus botulinus, which are known as Type A and Type B, respectively; and that Type A is highly resistant to heat, since its free spores require to be boiled for five hours or to be heated for 40 minutes at 105°C. (220°F. or 5 pounds of steam pressure), or to be heated for at least 6 minutes at 120°C. (about 250°F. or 15 pounds pressure), before they are killed.

It appears that the Bacillus botulinus is rather widely distributed throughout this country, for it has already been isolated from foods which were grown for the use of animals or of man in at least a dozen of our states, about half of which are east and half west of the Mississippi River. Certain areas in the West, however, have been much oftener afflicted than other states. It has been found on a number of kinds of agricultural products, and the claim has been made that it is a soil organism. However, there seems to be little danger of botulism except from preserved foods which are stored for some days, or weeks, under such conditions that the air is excluded from all or from a part of the food mass. This condition affords the Bacillus botulinus spores their opportunity to grow, for they are anaerobic and do not grow in the presence of free oxygen. Botulism has resulted from the ingestion of contaminated ham, pickled or brined and eaten without cooking; olives, brined and underprocessed; sausage, eaten raw or

[1] Printed by permission of the Secretary of Agriculture.

undercooked; cheese (cottage); tamales, presumably undercooked; some other spoiled meat products, notably underprocessed canned meats or animal tissue products, such as bottled clam broth; canned fruits in some instances; and, in a number of cases, canned vegetables, including both home-canned and commercially-canned products. String beans, asparagus, and olives have been oftener implicated than other vegetables; although peas, corn, beets, spinach, white ("navy") beans, apricots, and one or two other fruits have also been accused as causes of botulism, in a number of instances, with very good evidence to support the accusation.

Dickson reports that up to June 30, 1920, he had counted 54 outbreaks of botulism in this country, affecting 228 persons altogether, over two-thirds of whom have died. Besides that, he has records of 22 outbreaks of botulism which affected fowls ("limber neck" of chickens); and several cases of forage poisoning of horses and stock have been considered identical with botulism.

It must be remembered, however, that, although these figures are doubtless far short of the actual occurrence of botulism, which has not been widely recognized by physicians in this country until very recently, yet they represent an absolutely insignificant fraction of the consumers of canned goods. By way of illustration, it may be remarked that, if death or injury from automobile accident were so rare as to be headlined throughout the press of the country each time such events occur, perhaps such headlines would arouse panic and cause the sale of automobiles to stop altogether for some months, thus paralyzing the industry! For it is the rare and unfamiliar forms of sickness and death of which we are in terror, rather than their usual well-known forms which we are so much more likely to encounter.

Fortunately, the poison or toxin of Bacillus botulinus is easily destroyed by boiling, even though the spores are not. This does not warrant us in boiling spoiled food and then consuming it, for we are not certain that some of these heated spores, which have not been killed, might not grow in the body and ultimately produce poisoning, particularly if they are found in very large numbers. The history of botulism investigations, however, encourages us to believe that this could hardly be the case in food containing so few bacteria that it does not appear spoiled to the sense-perceptions of the average person.

Below are quoted the opinions of bacteriologists responsible for recent investigations of botulism that show that there are three precautions which should be taken by the home canner who wishes to be reasonably sure of avoiding the possibility of botulism, even though she cannot at the present time be absolutely certain that the heating process she uses will "strike in" to the center of the can or jar soon enough to kill all highly resistant spores, in case such should be present.

1. Use none but clean, sound, perfect fruits and vegetables, free from blemishes, when canning.

2. Give the contents of the can or jar a thorough inspection at the time of opening. Use the senses of sight and smell *first*, the sense of taste *last*.

3. Heat thoroughly all canned vegetables which appear sound and wholesome, so that the entire mass comes to the boiling point, *before tasting*. Even if you are using the canned string beans or asparagus for salad, do not omit the heating process. Boil for five minutes.

BOTULISM[2]

ERNEST C. DICKSON

"The temperature of boiling water is not sufficiently high to ensure destruction of the spores. . . . . It is obvious that many of the methods employed in preserving food, particularly the home-canning methods, are inefficient if spores of the more resistant strains of Bacillus botulinus happen to be contained within the can. . . . .

"There has been some difference of opinion as to whether food which contains the botulinus toxin is always so spoiled as to readily attract the attention of the one who opens the container. It is probable that there is always more or less marked evidence of spoilage in food contaminated with B. botulinus toxin, but it is wrong to believe that it is always very evident. In the laboratory I have seen a few cans of vegetables which had been experimentally inoculated in which there was no macroscopic evidence of spoilage and in which but little odor could be detected, although they contained a virulen toxin, but in the majority of cases the signs of spoilage were very marked and the odor was offensive. However, there are many instances on record in which the housewife who opened the jars of vegetables could not determine that the food was spoiled, even after she had smelled and

[2] *Amer. Jour. Pub. Health*, Nov. 1920, p. 865.

tasted it, although her subsequent illness and death were evidence that the toxin had been present in considerable amounts. In some instances the offensive odor was not noted until the food became heated during the process of cooking, and there are several instances in which the persons who ate the food as salad with salad dressing did not notice anything unusual in its taste or odor. It cannot, therefore, be stated that only food which is obviously unfit for consumption is liable to contain the botulinus toxin, but it should be emphasized that any preserved food which shows the slightest signs of spoilage should be discarded without being tasted, and should not be left where human beings or domestic animals or fowl may have access to it. The toxin of B. botulinus is destroyed by heat, and if canned food is thoroughly heated through after it is removed from the container, all danger of botulinus poisoning will be removed. It may be added that there are few, if any 'ready to serve' canned foods which are in any way damaged by being boiled and, if necessary, cooled before they are eaten."

Botulism and Its Relation to Canned Food[3]

CHARLES THOM

Mycologist, Bureau of Chemistry, United States Department of Agriculture

The Microbiological Laboratory of the Bureau of Chemistry has been investigating the subject of food poisoning for several years. Food poisoning appears in general in two forms, the fatal form which has been given a great deal of public attention on account of outbreaks involving the deaths of groups of persons and has become well known under the term "botulinus poisoning" or more accurately "botulism;" and second, the enteric type of poisoning in which the number of persons affected is very much greater but the death rate is very much less. This type of poisoning involves a very large percentage of the population at one time or another, the total of deaths perhaps exceeding that of botulism, but the percentage of fatal cases is so small as to excite less comment than the terribly fatal form which has been so widely recognized in recent years.

Confining, therefore, our discussion to botulism and its relation to canned goods, the general status of the investigation may be discussed under three heads, the responsible organism, the method of canning, and the precautions to be observed in eliminating the trouble.

[3] Printed by permission of the Secretary of Agriculture.

The responsible organism. The responsible organism is known as Bacillus botulinus, an anaerobic bacterium belonging to the group producing putrefactive odors. This organism is widely distributed in nature and accompanies many other organisms as contaminations in various food stuffs. It has apparently been the cause of the death of a great many domestic animals which have died of the disease known as forage poisoning. It is not, therefore, limited in its occurence to canned goods. The poison itself (toxin) is produced by the growth of the organism in the foodstuff. The organism can be filtered out of the foodstuff, and leave the toxin at its full virulence. This toxin is readily destroyed by heat so that if the entire mass is brought to the boiling point it will no longer produce the ordinary symptoms of botulism. Some strains of the organism, however, produce resistant spores which are not killed by ordinary boiling and which when fed in mass caused the death of experimental animals.

The method of canning. The relation of this organism to canning lies in the fact that a properly prepared can of food is free from air; therefore becomes a favorable medium for an anaerobic organism. The cooking to which the can is subjected destroys all of the miscellaneous organisms which may be initially present, leaving only the spores of species (such as this one) which are capable of withstanding the heat. The resulting can is, therefore, an exceptionally good incubator for Bacillus botulinus and its toxin. No system of canning thus far devised has been perfect enough to insure sterility of every can. The amount of heat used may not be sufficient in some cases. Imperfections in the apparatus, jars, cans, and gaskets, and in the variable human factor involved in the operations of canning account for the loss of a small percentage of the product, no matter how carefully the particular canning rules chosen are followed. This applies both to home and to commercially canned goods. The purpose of canning is to keep food from spoiling; and it must be frankly recognized that a certain percentage of goods is likely to spoil, no matter what the method used. Since it is impossible to guarantee that every can will keep and since it is impossible to tell you which spoiled can is dangerous, the canner must recognize the spoiled can as a legitimate loss which must not be salvaged for human food.

Precautions at the time of opening canned food. Now, how are we to detect this dangerous can? Spoilage in the can is recognized in various

ways. In tin the most prominent evidence is a swelled can. A normal can shows both ends depressed, due to a partial vacuum. Most forms of decomposition involve the production of gas which relieves the vacuum first and then produces internal pressure, forcing the ends of the can outward ("swell"); or causing a leak at some of the joints, so that the jar or can when examined is seen to be under pressure or to have become a "leaker" as shown by the stain on the label or discoloration at some of the seams. This may frequently be detected by the occurrence of bad odor at the discolored or suspected places in the unopened container. The odor of a spoiled can when opened is usually characteristically offensive in some form. The odors to be recognized vary from merely sour to actually putrid types. The contents of the can may or may not show disintegration, that is, evidence of breakdown of texture. Some of the most dangerous and offensive forms of spoilage show comparatively little change in the texture of the products within the can. Other forms show very extensive disintegration. In cases of spoilage the liquor is usually cloudy or turbid.

The person who opens a can of food should, therefore, give heed to the appearance of the unopened can, and to the odor and consistency of its contents before even tasting the product. If the can is obviously sound and the odor and appearance of the product characteristic for the particular foodstuff, it has been found safe to taste. If the taste is true to the product canned, it is safe to serve for human food.

It must be admitted that there is a vague possibility that dangerous food will pass such inspection as this, but such inspection would have eliminated the food actually responsible in every case of death from botulism in which the Bureau of Chemistry has actually obtained the product responsible.

Further, in many cases in which we have not actually had the material responsible for the death of the individuals, the records of the cases show that the spoiled nature of the food consumed was known at least to some of those who handled the product. This has been conspicuously true in some of the most recent cases involving the death of a considerable number of persons. We therefore feel justified in advising (1) ***that spoiled food be discarded, not salvaged and eaten;*** and (2) that the evidences of spoilage in so far as they involve danger of botulism are easily enough detectable to justify the statement that the person who opens the can is responsible for the destruction of its contents.

TEA[1]

SUSANNAH USHER

(*Concluded*[2])

TEAS OF CHINA, FORMOSA, AND JAPAN

The teas of China, Formosa, and Japan have a number of points in common which makes them fall naturally into the same group.

The tea is raised for the most part by natives on small plots of ground. The tea plants are of common Chinese origin and after a quiescent winter period they send forth their new leaves. These are picked in the spring in April or the first of May, according to the season. A second picking takes place in summer, and a third picking is sometimes made in the autumn.

The teas from these countries always undergo a preliminary manufacture which is carried out by the natives with primitive utensils and by time-honored slow hand processes. This preliminary treatment is sufficient for home consumption, but if the teas are to be exported they are further treated or re-fired in "hongs" or "firing go-downs" so that they can stand long voyages without deterioration.

These native hand methods of manufacture and the final re-firing in hongs are supposed to be the main elements in producing teas which have the following characteristics: good keeping qualities; fine delicate flavor and aroma; mellowness instead of pungency.

Japan teas are practically all of the green variety. Only small amounts are manufactured in imitation of blacks and oolongs.

The Japan teas are peculiar to themselves. The good grades are needle-shaped and well curled, with a clear, bright liquor of greenish-yellow color. They are delicate and mellow in flavor. The infused leaf is thick and soft.

Formosa Oolong. Soil, climate, growth, and peculiarities of manufacture all contribute toward making Formosa oolong tea unique in flavor and aroma.

Although Formosa has been a part of Japan since the Chinese-Japanese War, its teas are in a class by themselves.

In China and Japan the early pickings make the best teas but in Formosa on account of its climate the summer pickings, if the season is favorable, are more highly prized for their fine flavor and body.

[1] Copyright, 1921, by the American Home Economics Association.

[2] The first installments appeared in March and April.

Formosa oolong teas have a crapy appearance, and are evenly curled. The color of the dry leaf is brownish with some olive green tinge, and often grayish tips are present. Gray tips to some extent are seasonal as they are more numerous in teas made from summer leaf. These tips make an attractive looking tea but the quality of the tea must be judged by the cup test which decides the important points of strength and flavor. The wet leaf is green with brown edges. The flavor and aroma are delightfully aromatic. The color of the liquor is golden, and a good quality is bright and clear.

Scented teas called pouchong are also made in Formosa. They are made from the poorer quality teas and are scented with the blossoms of jasmine and gardenia. These blossoms are mixed with the tea and allowed to stand until the right amount of perfume has been imparted to the tea; the flowers are then removed and the tea fired at a low temperature.

These teas are too strongly scented to use alone, but a small amount may be used in blends.

China teas are divided into green, oolong, and black. The green teas usually found on the market are gunpowder, imperial, young hyson, and hyson.

In the manufacture of green tea, oxidation is stopped at once by steaming or heating in hot pans. Consequently, these teas contain more tannin than black teas and are green in color.

Oolong teas are allowed to undergo some oxidation during the withering process before the cells are ruptured by rolling. These teas stand between green and black tea in their characteristics.

Black teas undergo some oxidation during withering and rolling, but for a period after rolling oxidation is especially encouraged, as it makes a dark-colored tea containing a minimum of tannin.

The green China teas of good quality make a liquor that is light in color. Sometimes a light straw color, with an aromatic and pungent flavor.

The China oolongs are not imported in large quantities. The Foochow oolongs are "flavory" and mellow and make an infusion that is a beautiful golden color.

The Canton oolong which comes in bundles is often found in the Chinese quarter. It is of poor quality, the higher quality being packed in cans.

The black teas of China comprise North China congous, South China congous, and souchongs. In this market the congous are usually known as English breakfast teas. The North China congous are considered the finest. They are known by the districts in which they are grown. The South China congous are not so fine as the North China. They are much used in blends. Souchongs are not imported in large quantities.

ICED TEA

Not all teas are suitable for iced tea. Some, especially high quality, heavy bodied India teas grow thick on cooling, which does not make them attractive for iced tea. If you are uncertain about your tea, try out several samples, i.e., brew them and let them cool. Reject those that grow milky. Congous, oolongs, Ceylon, and various blends are good for iced tea.

The tea may be brewed and strained hot onto cracked ice and served at once; or it may be strained and allowed to cool before serving. It will be clearer if not cooled in the refrigerator.

Various adjuncts are served with iced tea, such as sugar, cloves, lemon, orange, pineapple, strawberries, or mint. If several fruits are added it should be called a tea punch.

JUDGING TEA

After manufacture, the following points are taken into consideration in judging the quality of tea: tips; twist or make; presence or absence of stalk or black leaf.

The pungency, body, and color taken together make what is called strength. The pungency of the tea is due to the tannin bodies. Too much tannin makes the liquor unpleasantly bitter and astringent, but too little tannin makes it dull and flat. The flavor and aroma of the tea are associated with the volatile oil present in the tea.

Body or fulness is a variable quality which is thought to be associated with the total soluble matter, as tannin and mucilaginous constituents.

Color is due largely to the oxidation products of tannin, which accounts for the dark color of black teas.

As caffeine is not acted upon during manufacture and does not vary sufficiently to make a chemical examination essential when commercial value is estimated, tea tasters do not take this element into account.

THE GOVERNMENT TEA BOARD

In 1920 the following standards were established by the tea board: (1) Formosa oolong (used for Foochow and Canton oolong); (2) congou; (3) Ceylon (used for India, Java, and Sumatra); (4) gunpowder, green; (5) young hyson, green; (6) Japan, pan-fired; (7) scented orange pekoe (used for capers); (8) scented Canton. These standards are for the use of tea examiners who are stationed at each port of entry. They are not verbal standards, but are cans of tea, each can representing the lowest grade which will be passed by the United States examiner.

All tea entering the country is tested by the examiners for quality of dry and infused leaf and for artificial coloring and facing. As coloring and facing are used to give a better appearance to the leaf, their use is discouraged. Talc, gypsum, and similar substances are used for facing, and Prussian blue and indigo for coloring matter.

"During the fiscal year 1920 a total of 96,862,858 pounds of tea was examined. Of this a total of 145,246 pounds, or 0.15 per cent, was rejected; 1,592 pounds on account of impurities, and 143,654 pounds because not equal to the Government standards with respect to quality."

TEA BLENDING

Tea blending is an art that needs the attention of an expert.

Blake says, "Teas of different kinds are blended for the purpose of producing results in the drink which cannot otherwise be obtained, and should it be possible, as it frequently is, to obtain a more satisfactory tea at a lower cost, then a double object has been attained. The several flavors of the different kinds of teas which constitute a well selected or happy blend unite, and, in their union, produce a pleasing effect. One of the grades or kinds, we will say, possesses delicacy of flavor in a marked degree; another good body; a third aroma; a fourth strength; then the combined whole, if not interfered with by an injudiciously selected ingredient, will create a blend which will produce a drink that will have flavor, body, aroma, and strength in correct and happy proportions."

STORING TEAS

If tea is not tightly covered, the volatile oil which gives tea its flavor and aroma evaporates; tea also absorbs moisture and odors and soon deteriorates.

Tea should be kept in a cool dry place tightly covered from the air. A tin receptacle with a tightly fitting cover is to be recommended. A small canister should be kept for daily use so that the large canister may be kept closed as much as possible, as a large bulk of tea keeps better than tea in small packages.

In general it may be said that a high quality tea made from young leaf will keep its flavor longer than the same kind of tea made from older leaf. The tight roll which the soft young leaf takes in manufacture is one reason for its good keeping qualities.

The teas of China, Japan, and Formosa keep fresh somewhat longer than the teas of India, Ceylon, and Java. Ceylon and Java teas are especially apt to lose their fragrance, but all teas "go off flavor" after their first season and do not grade so high as the "new season" crop.

REFERENCES

The Cultivation and Manufacture of Tea in the United States. U. S. Dept. Agr., Bureau Plant Industry, Bul. 234, 1912.

Tea Hints for Retailers. John H. Blake. The Williamson Haffner Engraving Co., Denver, 1903.

Factors that Constitute Values in Tea. Jour. Soc. Chem. Ind. (London), Vol. 28 (1909), p. 285.

The Manufacture of Tea. Sawamura. 8th International Congress of Applied Chemistry, Vol. 18, p. 313.

Chinese Yearbook.

Tea. Edith Browne. London, 1912.

The Book of Tea. Okakura-Kakuzo. Duffield and Co., New York, 1906.

Food Inspection and Analysis. L. E. Leach. Wiley & Sons, New York, 1920.

Beverages and their Adulterations. Harvey W. Wiley. 1919.

Tea and Coffee Trade Journal, 79 Wall Street, New York.

Bulletins of the Imperial Institute. London, especially 1913.

Report on the Tea Industry of Java, Formosa, and Japan. A. C. Kingsford and M. Kelway Bamber. "Times of Ceylon" Press. 1907.

EDITORIAL

Why go to Swampscott? Three arguments usually combine to bring members to the annual meetings of their organizations: first, the program and the new facts and theories which it presents; second, enjoyable and profitable contact with those who are doing work similar to one's own; and third, the chance of a good time "on the side." The purpose of this article is to urge every member of the American Home Economics Asssociation to consider all three reasons before she decides against going to the Fourteenth Annual Meeting at Swampscott.

Any one who knows the success of the February meeting at Atlantic City, is ready to trust Dr. Blood's committee to provide a program in which the various phases of home economics work will all be represented but which will at the same time give a sense of general unity and balance,—one from which a few famous lions will roar engagingly and during which the most modest among the members may have a comfortable chance to air her views in general discussion.

The faithful attendants at Association meetings know the manifold advantages of coming into personal relations with their home economics colleagues, but these may not be so plain to the new recruits and the habitual stay-aways. It is not merely that one meets those whose names are familiar in books and journals and college catalogues but that from chance chats one learns much of the general drift of professional thought, the consensus and variations of professional opinion, and the sources of the best professional influence. Moreover as one joins in the discussions, the voting, and the informal give-and-take of talk about headquarters, one comes to feel oneself an integral part of an influential organization with a vital share in shaping its policies. We are sometimes told that home economics workers are handicapped by a lack of professional spirit. Is there any better way to develop a professional spirit than to spend a few days as an active part of our largest professional group?

As for the good times "on the side" at Swampscott, every one who knows New England knows how many people year after year bear testimony to the delights of the famous North Shore, its cool ocean

breezes, its fine bathing, its picturesque rocks and smooth beaches, and its wealth of historical and literary associations. Among its hotels the New Ocean House ranks high in comfort, and convenience. Boston is less than an hour away, with good train and trolley service, so that day and half-day excursions to town can be easily arranged. The local committee is planning trips of special professional interest to such Boston institutions as the Nutrition Laboratory of the Carnegie Institution, cafeterias and hospitals, textile collections in the Museum of Fine Arts, Simmons College, the Women's City Club, and Denison House Settlement.

Information will be available at the New Ocean House as to how one may best visit such points of general interest as the Boston Public Library with its famous frescoes by Sargent, Abbey, and Puvis de Chavannes, the Old North Church and Burying Ground, with their colonial and revolutionary traditions, or Harvard University, and the interesting houses of Cambridge.

On the coast, four miles south of Swampscott, is Nahant, formerly the summer home of Longfellow, Motley, and Prescott, and now that of Senator Henry Cabot Lodge; while not much farther to the north are Salem and Marblehead, both full of historic interest, with old-time homes furnished as in the days when the East India trade flourished, and giving to their visitors a vivid idea of former manners and customs. To a student of household arts a visit to those open to the public and to the museum at Salem is worth more than hours of reading; and how about buying a "Jim Crow" in the shop of the House of Seven Gables, now faithfully restored? Scattered along the roads are many tea-houses, interesting both for their location and for the different types of management they represent.

Longer trips by train or motor may be arranged through well-known suburbs to Concord and Lexington, with their battle monuments and their associations with New England literature, or southward to Plymouth, which is just as interesting as last year though the tercentenary crowds are gone. Northward one can visit Gloucester perhaps going one way by the shore boulevards through Beverly, Pride's Crossing, Manchester, and Magnolia, where beautiful modern homes vie in allurement with the shops of famous city firms; and the other way by inland roads and country scenery; and if one has a whole day one may stop in Gloucester, long enough to visit the artist's colony and the gallery on

the moors of Cape Ann, watch the yachts in the harbor, and possibly catch the flavor of the modern fishing trade by a visit to a canning factory.

To make sure that every one gets a sample of these possibilities, the Committee has included on the program arrangements a general picnic supper on the beach, one general sight-seeing trip in town, and a motor trip to Gloucester.

Undoubtedly it costs money to come to the meetings, but remember that they are at a time when many of us need a change and cooling off and when they can be combined with the Fourth of July holiday. Moreover, if one considers the three kinds of satisfaction that they may give, is not the real question, "Can I afford not to go?"

H. W. A.

TENTATIVE PROGRAM

FOURTEENTH ANNUAL MEETING

AMERICAN HOME ECONOMICS ASSOCIATION

NEW OCEAN HOUSE, SWAMPSCOTT, MASSACHUSETTS, JUNE 27–30, 1921

MONDAY, JUNE 27

10.00 a.m. Council Meeting

2.30 p.m. Opening Session. Mary Sweeney, President, presiding

The American Home Essential to the Maintenance of American Ideals
Sarah Louise Arnold, Dean Emerita, Simmons College
The Necessity of the Extension of Home Economics Teaching
Payson Smith, Commissioner of Education, Massachusetts

8.00 p.m. General Session, with the New England Home Economics Association. Antoinette Roof, presiding

The Place of the Nutrition Worker in the Health Program
Bailey B. Burritt, General Director, Assn. for Improving the Condition of the Poor
Home Economics Women and the Press
Martha Van Rensselaer, Cornell University

TUESDAY, JUNE 28

Professional trips in the morning

2.30 p.m. Extension Section. Madge Reese, presiding

Reasons for Rapid Development of Home Demonstration Work
Margaret A. Ambrose, Asst. Director Home Demonstration Work, Knoxville, Tenn.
Marie Sayles, State Home Demonstration Agent, Ohio
How Club Work Prepares Girls for Earning a Livelihood as well as for Womanhood
Elsie Trabue, State Leader of Girls' Clubs, Connecticut
Jane S. McKimmon, State Home Demonstration Agent, North Carolina

Advanced Plans for the 1921 Home Demonstration Program of Work
Ida S. Harrington, State Home Demonstration Agent, Rhode Island
Laura F. Neale, State Home Demonstration Agent, Texas
Committee's Report "Training and Maintenance of Home Demonstration agents"

2.30 p.m. Round Table, Committee on Teaching. Henrietta Calvin, presiding

Experiments in Coordinating Home Economics Instruction with Home Life Experience
Etta Flagg, Supervisor of Home Economics, Public Schools, Los Angeles
Edna Groves, Supervisor of Home Economics, Public Schools, Portland
Helen Lee Davis, Professor of Household Arts, Oregon Agricultural College
Teaching Foods in Rural Schools
Cara Harris, Supervisor of Home Economics, Shelby County, Tenn.
Problems in Continuation Classes
Ellen Miller, Merrill-Palmer School, Detroit, Mich.
Committee Report on Essentials of Equipment and Rooms for Teaching Home Economics
Mrs. Calvin, U. S. Dept. of Education

5.00 p.m. Picnic Supper

8.00 p.m. General Session. C. F. Langworthy, presiding

The Need of Further Investigation of the Effect of Commercial and Household Processes on the Vitamin Content of Foods
John R. Murlin, Chairman Committee on Research in Human Nutrition, National Research Council
The Present Dye Situation
F. E. Breithut, Calco Chemical Company, Bound Brook, N. J.
Plans for Textile Research under the National Research Council
Miriam Birdseye, Chairman Textile Standardization Committee

WEDNESDAY, JUNE 29

Sight-seeing and professional trips in morning

10.00 a.m. Council Meeting

Meeting of Federation of Home Demonstration Agents of the North Eastern States. Temporary Chairman, Mrs. Margaret Robinson Ellison, Waltham, Mass. All Home Demonstration Agents attending the conference are invited to attend this meeting.

1.00 p.m. Luncheons

Omicron Nu: Reservations should be made as soon as possible with Marion S. Van Liew, 359 State St., Albany, N. Y.
Phi Upsilon Omicron: Reservations should be made as soon as possible with Jessie Whitacre, Box 203, Logan, Utah

2.30 p.m. Textile Section. Agnes H. Craig, presiding

How Can Home Economics Aid in Training the Textile Chemist?
Elizabeth Weirick, Textile Testing Laboratory, Sears, Roebuck Co.
The High School Clothing Course
Zella E. Bigelow, University of Idaho

Extension Work in Clothing
Doris Schumaker, Cornell University
A Clothing Facts Bureau
Ada Blanchard
Report of Committee on Standardization of Textiles
The Status of Legislation
Helen Goodrich, Michigan Agricultural College
Further Data on Purchasing Habits
Ethel Phelps, University of Minnesota
Petticoat Test
Ellen Beers McGowan, Teachers College, Columbia University
Research on Minimum Standards
Grace Denny, University of Washington

2.30 p.m. Round Table, Social Service Committee. Lucy Gillett, presiding

Training for Nutrition Work in Social Service
A. The Advisability of Having in the Training:
1. Methods of Teaching
2. A Social Point of View. Margery Smith, Dietetic Bureau, Boston
3. A Medical Point of View. Margaret Sawyer, Director Nutrition Service, American Red Cross
B. Subject Matter. Report from the New York Nutrition Council

8.00 p.m. General Session. Mary Sweeney, presiding

The Future for Home Economics Women in Institutional Administration
Mary A. Lindsley, Manager Grace Dodge Hotel, Washington, D. C.
Industrial Opportunities for Training for Women
Mary Anderson, Director Women's Bureau, U. S. Dept. of Labor
Food Supply and Demand
Mrs. Edward P. Costigan, League of Women Voters

THURSDAY, JUNE 30

9.30 a.m. Science Section. Minna Denton, presiding

Topic: Brief Reports of Recent Research
Development of Research Problems from the Field of Experimental Cookery. Various Methods of Approach
Day Monroe, Department of Foods and Cookery, Teachers College, New York
An Account of a Specific Research Problem
Mary Barber, Department of Foods and Cookery, Teachers College, New York
The Organization and Possibilities of Cooperative Research in Colleges
Walter H. Eddy, Professor of Physiological Chemistry, Columbia University
The Basal Metabolism of Women and Underweight Children
Katharine Blunt, Chairman Home Economics Dept., Univ. of Chicago
Emulsification in Mayonnaise
Kenneth L. Mark, Professor of Chemistry, Simmons College
The Carbon-Dioxide Diffusion Ratio in Doughs as an Index of Flour Strength
Mildred Weigley, Head of Home Economics, University of Minnesota

Influence of Pressure Cooker on the Vitamin Content of Foods
Louise Stanley, Head of Home Economics, University of Missouri

Studies of the Bacterial Flora of Home Canned Vegetables
Harold L. Lang, Professor of Bacteriology, Carnegie Institute of Technology, Pittsburgh, and Specialist in the Office of Home Economics, U. S. Dept. of Agr.

List of Mimeographed Abstracts Presenting Graduate Work in Home Economics during the Current Year
C. F. Langworthy, Chief of Office of Home Economics, U. S. Dept. of Agr.

9.30 a.m. Institution Economics Section. Octavia Hall, presiding

The Housing and Feeding of Groups of Women
A. College Students. Flora Rose, Cornell University
B. Working women
Plans for a New Women's Club House in Boston. Florence B. Child, Executive Organizer of the Durant Incorporated, Boston
The Industrial Cafeteria
E. H. Ansell, Luncheon Manager, New England Telephone and Telegraph Company, Boston

9.30 a.m. Round Table. Vocational Committee. Alice Loomis, presiding

Probable Topics:
The Relation of the Supervision of Smith-Hughes State Work to the Supervision of Other Home Economics State Work
Should a Teacher of Vocational Home Economics in Day Schools be Trained along All Lines of Household Activities?
Part-time and Evening Classes

2.30 p.m. Business Meeting

8.00 p.m. General Session

Home Demonstration Work: A Permanent and National Contribution to American Education
O. B. Martin, Assistant in charge of Demonstration Club Work, Office of Extension Work South

The Place of Boys and Girls' Club Work in Extension Education
George E. Farrell, In charge of Boys and Girls' Club Work, Office of Extension Work North and West

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The Hospitality Committee is making definite arrangements for the following trips. An information desk will furnish details and will help in planning other sightseeing or professional trips that individuals or small groups may wish to take.

Tuesday morning

Professional trips:

Peter Bent Brigham Hospital and Children's Hospital. Inspection of Wards and Kitchens. In charge of Helen C. Reilly, State Department of Health

Women's City Club and Filene's Restaurant. Inspection of Food Service. In charge of Amy Fackt, Women's Educational and Industrial Union

Boston Museum of Fine Arts. Textile and Tapestry Corridors and Textile Study Room, with decent service. In charge of Ella Spooner, Simmons College

Denison House. Folk Handicraft Guild. In charge of Abby Spear, Simmons College

Carnegie Nutrition Laboratory. In charge of Margery Smith, Dietetic Bureau

Forsyth Dental Infirmary. Research Department. In charge of Mrs. Alzira Sandwall, State Department of Public Health

Junior Extension Work. A demonstration of home economics club work in Wakefield. In charge of Mrs. Ellison, Home Demonstration Agent, Middlesex County.

Plans for these trips must be made on Monday. People who expect to arrive late but wish to be included in one of the Tuesday morning trips are asked to notify, in advance, the Chairman of the Hospitality Committee, Jeannie Kenrick, 41 Eliot Memorial Road, Newton, Mass.

Tuesday 5:00 p.m.

Picnic supper at Phillips Beach. Hostesses, Mrs. Melville Eastham and Mrs. Emily Hawes. For guests registered at the hotel a picnic supper will be provided by the hotel in place of the regular meal. For other guests the hostesses will arrange for supper, either through the hotel or otherwise.

Wednesday morning

Sight-seeing and professional trips:

Historic Boston: North End, Old North Church, Old South Meeting House, Faneuil Hall, The Fenway. In charge of Susie Sprout, Brookline Schools

North Shore: Salem, Marblehead, Beverly, Manchester-by-the-Sea, Gloucester. In charge of Helen Lockwood, Framingham Normal School

Simmons College, State Dept. of Public Health, Dietetic Bureau, Women's Educational and Industrial Union, Beverly Health Center, may be visited with guides.

Thursday—late afternoon

Boston Floating Hospital. In charge of Margery Smith, Dietetic Bureau

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Reservations at the New Ocean House should be made directly with the manager. The rate of $7 to $9 per person, per day, American plan, two people in a room, has been offered by the management. This is an exceedingly generous offer, and members of the Association are urged to register, so far as possible, at headquarters. A limited number of rooms at a $1 or $2 rate are available in private houses and small boarding houses in Swampscott and Lynn. Information about these may be obtained from Mrs. Melville Eastham, 2 Prescott Street, Cambridge, Massachusetts. The hotel grill room, with a reasonable à la carte service, will be open at the time of the convention. A selected list of hotels and boarding houses on the North and South shores has been prepared by the Hospitality Committee for the benefit of members of the Association who may wish to prolong the holiday in New England. Mrs. Eastham will be glad to give information in advance or at the time of the meeting.

Members arriving with baggage should take a train stopping at Swampscott (25 minutes from Boston) where trains are met by the hotel motor. Train service is more frequent to Lynn, which has a 20 minute trolley car connection with Swampscott. Trains leave the North Station, Boston, via the Boston and Maine Railroad. The Boston Chamber of Commerce has organized a Tourist Department to aid summer travelers and is making every effort to secure tourist rates. It seems improbable, however, that these will go into effect this summer because of the precarious financial condition of the New England railroads.

OPEN FORUM

To the JOURNAL OF HOME ECONOMICS:

I was very much interested in the articles by Michael Davis, Jr., and Bertha M. Wood in the December and January JOURNALS. I feel that there is a great need for definite, correct information which will help, not only the home economics teacher in her work with groups of foreign people, but also the social worker. I am, as you know, working with Jewish people constantly; hence I will be very grateful if you will correct certain minor inaccuracies in the part of the paper pertaining to the diet of the Jews. The paper is so well written that I hesitate to draw attention to these errors, but there are sufficient restrictions in the Jewish diet without adding some that are nonexistent.

The article classifies fish with meat. This is incorrect. Fish is a neutral and may be eaten with milk; in fact it is often cooked with milk. I should feel handicapped, indeed, were this impossible. Since fish is a neutral, it may be eaten at the same meal with meat, but when this is done fish is generally used as an entré.

The article further states that cereals are not cooked for breakfast because it takes too long to "kosher" them. Cereals do not require "koshering." During the summer months, when there is danger of maggots and worms getting into the cereal, it must be looked over quickly by "placing it in a hot plate." If the cereal is infested, the insects will not be able to resist the heat, and will crawl out. The process never takes much more than the time it requires to heat the plate. "The length of time it takes to kosher cereals" is, therefore, not the reason why Jewish mothers do not cook cereals for breakfast. Many mothers do not like to get up early enough to cook them, for they do not realize the value of cereals as a breakfast food, but a great many mothers do cook them. In addition to the cereals mentioned in the article, farina, wheatina, and all the other wheat preparations on the market are used in great abundance when available.

One other error is that borsch (borscht) is referred to as "like our vegetable soup." Borsch is a dish usually made of beets, cabbage, or tomatoes. It is made by the addition of some onions and usually "sour salt" (critic acid). It is in this latter respect not at all "like our vegetable soup." Lest teachers make the mistake of recommending it without knowing of the addition of this acid, I draw attention to it here. Borscht is sometimes also made of sorrel served cold with sour cream and chopped hard cooked eggs. The Jews of some districts serve boiled potatoes with borscht, but this is by no means a general practice.

Mention is also made of tripe as not available for use in the Jewish diet. This is a mistake. Tripe if secured from a kosher animal in a kosher market is not only usable, but is used a great deal.

MARY L. SCHAPIRO.

A Method of Collecting Data on the Home. In speaking before women's clubs and other groups the writer has found it an interesting device to send about in the audience a schedule of inquiries on some simple point regarding household management which can be answered readily by those present, and then collect the data before the meeting adjourns, summarize it, and present the facts to the audience. By placing the inquiry in the form of a schedule on which the person answering has simply to place a check mark opposite the item which represents her answer, a considerable number of replies can be quickly secured. Duplicate copies of the schedule can, of course, be used in various parts of the audience. At a meeting of the New Haven Women's Club, in November, 1920, a schedule regarding the approximate monthly food cost per person was thus sent about. Out of twenty-one reports the lowest was $13 per person per month, and the highest $40 per person per month, and the "mean" (or that number such that equal numbers of the group spent respectively less than the sum and more than the sum) was found to be $23. Reducing this to a per capita per diem figure the minimum food cost was 40 cents per person per day, the maximum $1.30, and the mean 75 cents. At a New York suburban club the figures ranged from 58 cents to $1.83, with the mean at $1. These were largely servant-keeping families. Another schedule collected facts as to wages currently paid for laundresses. The schedule for this sort of inquiry can often be made up by placing in a column a set of figures representing various costs and then asking the persons to check opposite the cost which is closest to their own.

BENJAMIN R. ANDREWS.

BOOKS AND LITERATURE

Home Economics in American Schools. By MABEL BARBARA TRILLING, and others, with collaboration of Harold Ordway Rugg. Supplementary educational monograph, published by The University of Chicago, December, 1920, pp. 122. $1.25.

This monograph will prove especially acceptable to those who are willing to put thought into the reading of it. As indicated in the introductory chapter, it is the purpose of the authors to report the findings of a survey of the status of home economics in the public schools of the United States. The "findings" present evidence of heterogeneity in organization and content of curriculum, teaching emphasis on information and technique rather than on powers of thinking and judgment, dearth of standardized scales and tests, and absence of a definite and worthy program for curriculum making.

The typical picture of work done in the public schools has been drawn from the analysis of several hundreds of courses of study in twenty-two states. The basic assumption in the study of textbooks currently used is that much of teaching is controlled by the textbook. These studies point to the imperative need for a thorough over-hauling of administration of courses that deal with food, clothing, and shelter, and the need of textbooks that will serve as a means whereby "understanding is developed." Conclusions founded upon data contained in the studies are effectively presented through figures and tables.

The chapters dealing with Inadequate Purposes of Teaching and with New Purposes for Teaching set forth lack of clear statements of educational objectives and outcomes, and the need for the perfection of ability of critical judgment and abilities of appreciation. There might well have been further elaborated the perfection of those abilities in accordance with "how children learn."

A suggestive program for the construction of the curriculum is concluded with facing the facts that, if home economics is to justify its position on the ground of intellectual value and social usefulness, it must be built on educational principles, and that, if we are to have a psychology of home economics, we ourselves must write it through our own "laboratory."

Not alone as a survey is the monograph of interest, nor should it be regarded as an isolated piece of work. Rather should it be accepted by the profession as a valuable preliminary step to the scientific study of education in home economics.

INGA M. K. ALLISON,
Colorado Agricultural College.

Vocational Education. By DAVID SNEDDEN, New York: The Macmillan Company, 1920, pp. 587. $2.75.

This book discusses the fields of agricultural, commercial, industrial, and homemaking education; their relation to general education; some of their special and future problems; and the administration of vocational education. Each field is discussed in separate chapters and other chapters are devoted to subjects of interest in the organization of vocational education, which gives the impression that the book is composed of a collection of treatises on phases of vocational education interests. The author has spent many years in the study of vocational education in his effort to discover terminology that will be adequately understood.

In the first chapter the meaning of vocational education is very interestingly presented. In characteristic style the definitions are stated clearly. This is of great advantage because there is no question left in the mind of the reader as to the author's point of view. Furthermore, it is shown that vocational education and liberal education differ in their aims even when the same

materials are used for both, and that the methods of presentation differ depending upon the aims of each. Some persons will disagree with the author in his view that, when vocational training is given, all thought of liberal education should be left for after work hours. The author believes that all vocational training should be intensive and given either while the worker is on the job or just preceding the acceptance of a job. He labels all other methods "cold storage" and questions their functioning ability.

In the chapter on Vocational Homemaking the author urges, rightly, that a further analysis of the situation is necessary before undertaking to prescribe work in this field. The analysis of the home as given is somewhat disconcerting because the income figures quoted are several years out of date, but very good questions are raised concerning the necessity for the analysis of homemaking conditions under different income situations, and adjustments are suggested which for the greater part have been neglected by the average home economics instruction. Attention is drawn to the fact that "compositeness" is characteristic of the homemaker's job which for that reason is still very primitive in its organization. The analysis given of homemaking for a vocation and for general education is helpful, although in each case stress seems to be laid upon the technique and little space given to the consideration of the social graces of homemaking.

The criticism given that the interest of young women who come to evening schools "centers about cooking dishes suitable for parties" is surely obsolete. It is the experience of the reviewer that young women who have the initiative to attend evening school come with a better purpose in mind.

The "case method" of approach, which is offered as a solution, is an excellent suggestion, but would be more valuable to the homemaking program if it were developed as a community study rather than as a study of individual cases.

The suggested "project method" is evidently, according to the text, intended to mean what is generally given in home economics instruction as "home projects." This is confusing because of the similarity of terminology to the "project method" of teaching in general.

In the chapter on the Probable Future of American Women a rather full account is given of the well-known conditions for women as they exist today, followed by a suggestion that the vocational training of women for the job and for promotion in the job would help solve the problem.

The author raises a great many questions throughout the book which he does not attempt to answer and which to a large extent have no prospect of being satisfactorily answered. While he suggests few solutions for the problems which he states as existing, his premises are fundamentally correct, and the book is a very stimulating piece of work to those interested in the field of home economics either as a vocation or as liberal education.

HELEN LIVINGSTONE,
Director Girls' Continuation Schools, Detroit.

Chemistry for Public Health Students. By E. GABRIEL JONES. New York: E. P. Dutton & Co., 1920, pp. 244. $2.50.

This book, written by public health students of the University of Liverpool, describes in excellent form methods for the analysis of materials which are likely to come into the laboratory of a Board of Health. These include milk, water, butter, other foods, beverages, water and sewage, air and disinfectants. The methods as given differ to some extent from those in general use in this country. Thus the book, excellent as it is, will hardly be of much service in training our students.

JOHN F. NORTON,
University of Chicago.

Sheila and Others: The Simple Annals of an Unromantic Household. By WINIFRED COTTER. New York: E. P. Dutton & Co., 1920, pp. 196. $2.00.

A delightfully written account of the various employees of a Canadian household—the general helper, the furnace man, the laundress, and "others." Each chapter is an excellent character sketch, and under it all are many bits of true philosophy. The book is really a series of interesting short stories. ALICE P. NORTON.

PAMPHLETS RECEIVED

Issued by the U. S. Department of Labor, Children's Bureau:

Eighth Annual Report of the Chief.

Child-Welfare Programs. Study Outlines for the Use of Clubs and Classes. Bureau Publication No. 73.

Industrial Instability of Child Workers. Bureau Publication No. 74.

Infant Mortality. Results of a Field Study in Akron, Ohio. Bureau Publication No. 72. Results of a Field Study in New Bedford, Mass. Bureau Publication No. 68.

A Summary of Juvenile-Court Legislation in the United States. Sophonisba P. Breckinridge and Helen R. Jeter. Bureau Publication No. 70.

Issued by the U. S. Public Health Service:

Keep Well Series: Bottle Feeding for Babies, No. 10; Breast Feeding Her Baby, No. 9; Motherhood, No. 3.

Sanitary Disposal of Sewage Through a Septic Tank. H. R. Crohurst.

Issued by the U. S. Department of Agriculture:

An Agricultural Almanac for 1921. Farmers' Bul. 1202.

Baking in the Home. Farmers' Bull. 1136.

The Farm Kitchen as a Workshop. Farmers' Bul. 607. (A revision of a former bulletin.)

Home Laundering. Farmers' Bul. 1099.

House Cleaning Made Easier. Farmers' Bul. 1180.

Milk for the Family. Department Circular 129.

Peppers. Department Circular 160.

Issued by the Department of the Interior, Bureau of Education:

Administration and Supervision of Village Schools. Bul. No. 86.

Development of Agricultural Instruction in Secondary Schools. Bul. No. 85.

The Eyesight of School Children. Bul. No. 65.

Health Education Bulletins: Child Health Program for Parent-Teacher Associations and Women's Clubs, No. 5; Further Steps in Teaching Health, No. 6; Health Training for Teachers, No. 8; The Lunch Hour at School, by Katharine Fisher, No. 7; Summer Health and Play School, No. 3; Teaching Health, No. 4; Wanted—Teachers to Enlist for Child Health Service, No. 1.

Health Education Charts: Class-Room Weight Record; Health Strength Joy; Right Height and Weight for Boys; Right Height and Weight for Girls; What is Health?

Home Economics Courses of Study for Junior High Schools. Home Economics Circular No. 9.

Joy and Health Through Play. George E. Schlafer.

Lessons in Civics for the Three Primary Grades of City Schools. Teachers' Leaflet No. 9.

Motion Picture Films of Educational Value. Extension Leaflet No. 2.

The National Crisis in Education: An Appeal to the People. Bul. No. 29.

The University Extension Movement. Bul. No. 84.

Reorganization of Science in Secondary Schools. Bul. No. 26.

Issued by Iowa State College, Ames:

Care of Clothing. Cora Leiby. H. E. Circular No. 23.

Food for the Family. Nell M. Barnett. H. E. Bul. No. 10.

Home Millinery. Cora Leiby. H. E. Circular No. 22.

The Hot Lunch for School Children. Nell M. Barnett, H. E. Circular No. 20.

Pictures for the Home. Marion L. Tucker. H. E. Circular No. 21.
Refinishing and Care of Furniture. Marion L. Tucker. H. E. Circular No. 19.
Why Use Milk. Nell M. Barnett. H. E. Circular No. 18.

Issued by the Federal Board for Vocational Education, Washington, D. C.:
Survey of Junior Commercial Occupations. Bul. No. 54.
Trade and Industrial Education for Girls and Women. Bul. No. 58.
A Unit Course in Poultry Husbandry. Bul. No. 63.

Issued by The American Institute of Baking:
First Annual Report 1920.
Plan for the Registration of Baking Materials. Bul. 4.
Standards and Definitions of Food and Materials. Bul. 3.
Studies on the Control of Rope in Bread. Bul. 5.

Issued by the publishers listed:
Adenoids and Arithmetic Board of Education, Cleveland, Ohio.
Bibliography on the Care and Feeding of Infants and Children. Bureau of Child Hygiene, State Department of Health, Trenton, N. J.
Bread—The Vital Food. Claudia Q. Murphy, 41 Union Sq. W., New York.
Canning and Preserving. University of Maine, Orono, Maine.
Child Legislation in Iowa. Frank E. Horack. Univ. of Iowa, Iowa City.
Connecticut Home Grown Foods. Buls. 22 and 24, July and August, 1920, Conn. Agr. College.
Cosmetic Nostrums and Allied Preparations. American Medical Assn., Chicago.
The Development of Research in the United States. James Rowland Angell. National Research Council, Washington, D. C.
Elementary Embryology for High School Girls. Ann Criswell Arbuthnot. Board of Education, Cleveland, Ohio.
Growing Sweet Peas. A. C. Beal. N. Y. State College of Agr., Cornell University, Ithaca.
Heat Penetration in Processing Canned Foods. W. D. Bigelow. Research Laboratory, National Canners Association, Washington, D. C.
Home Economics in Milwaukee-Downer College. Susan F. West. Milwaukee Downer College Bulletin, Milwaukee, Wis.
Home Training Bulletins: A Better Crop of Boys and Girls; Teaching the Boy to Save; Teaching the Girl to Save; Training the Boy to Work. Wm. A. McKeever, Lawrence, Kan.
How to Teach Canning and Jelly Making in Rural Schools. The Hampton Normal and Agricultural Institute, Hampton, Va.
Material on Geography. Normal School Bul., Eastern Ill. State Normal School, Charleston.
Proceedings of the Joint Convention of the National Society for Vocational Education and the Vocational Education Association of the Middle West. Bul. No. 32. National Society for Vocational Education, New York City.
Sixth Annual Report of the Visiting Housekeeper Association. Detroit, Mich.
Standardization of Domestic Service. Reprint from the *Labour Gazette*, March, 1921.
Suggested Budgets for Newlyweds. Home Economics Bureau, Society for Savings, Cleveland.
Water-Soluble B in Cabbage and Onion. Bertha K. Whipple. (From Dept. of H. E., University of Chicago.) Reprint from *Jour. Biol. Chem.* Vol. 44, No. 1, October, 1920.
Whitewash and Cold Water Paints. Compiled by Tyrrell B. Shertzer. Bul. 304, National Lime Association, Washington, D. C.

NEWS FROM THE FIELD

Oregon Agricultural College. The completion of the second unit of the home economics building[1] at the Oregon Agricultural College is a big step in the development of home economics in the West and gives to the college one of the largest buildings of the kind in the United States.

At the formal opening, March 11 and 12, a huge exhibit, featuring each of the fifty courses offered in the School of Home Economics and several of the allied courses of work on the campus, attracted and deepened the interest of students, graduates, parents of students, and other citizens of the state. The extensive presentation of the work of the school is indicated in the program, which is given here somewhat in detail because of its valuable suggestions to those interested in exhibits.

The Nursery and the Play Room—Display of model nursery and playroom equipment; children of visitors cared for during exhibit hours.

Child Nutrition Laboratory—Clinic for weighing and measuring children and for advice concerning malnourished children.

"The Age of Innocence"—Showing of infant wear and accessories to the baby's toilet.

The Tea Room—Where guests were served light refreshment.

The Home and the Family—Graphic information concerning health, income, and management.

The Housewife and Her Tools—A working exhibit of labor-saving devices.

Light and Water for the Farm Home—A working demonstration by the farm mechanics department.

Boys and Girls Club Work—Work in the state shown and explained.

Food Selection and Preparation—Various cuts of meat shown and located by charts (arranged by animal husbandry department); exhibit of foreign and domestic cheeses; exhibit of cereals and flours; demonstrations of canning and bread-making methods and products; illustration of adequate meals for families and individuals, especially children; types of school lunches.

Home Nursing—Working exhibit of routine with patient; bandaging and emergencies.

The Home[1] Library—Good arrangement and good books shown by college library.

The "Festive Board"—Types of table services and arrangement of fifty years ago.

"Ye Olde Curiosity Shoppe"—Keepsakes of wearing apparel and household articles.

"Art Panels from the Orient"—Display of oriental rugs; demonstration of weaving by native Armenian girl.

The Art Department—Student's work in design and color as related to home economics.

Good Taste in Home Furnishings—Arrangements of draperies, linens, and china.

Clothing—Exhibits of dresses, suits, and wraps appropriate for different ages and occasions; made-over clothes; exhibits of lace and furs.

Fashion's Flower Garden—Fifty models dressed in simple attractive costumes made in the household arts classes.

Suites of rooms, including living room, dining room, and kitchen, properly, economically, and artistically furnished for low and moderate incomes.

College Practice House open to guests during entire time of the exhibit.

[1] Anyone interested may borrow the plans of the three floors by sending 10 cents in stamps to the JOURNAL Office.

The Constantinople Fund. The Constantinople Fund Committee has submitted to the Association a full report of funds collected. This report by states is published in the *Bulletin*, but the following summary is presented here for the benefit of the readers of the Journal, all of whom will watch with keen interest Mrs. Norton's work in establishing the Department of Home Economics in the Constantinople College.

SUMMARY OF FUND

Amount contributed by educational institutions and organizations*	$5,034.27
International Institute of education (paid directly to Mrs. Norton)	800.00
Individual contributions**	708.75
Ellen C. Richards Memorial Fund	200.00
Total amount contributed	$6,743.02

* The organizations are home economics associations and clubs, teachers associations, and the home economics sororities Omicron Nu and Phi Upsilon Omicron.

** This includes the amounts given by the two sororities in addition to their gifts through the states.

REPORT BY DISTRICTS

For Educational Institutions and Organizations

District	*Allotment*	*Amount received*
Eastern	$1,800.00	$1,120.79†
Southern	800.00	873.05
Central	1,600.00	1,531.29‡
West Central	900.00	467.75‡
Pacific	700.00	1,034.35
Canada	200.00	7.04
Total	$6,000.00	$5,034.27

† The $800 from the International Institute of Education should be added to this amount for the Eastern District.

‡ Contributions are still coming in.

The session of the **National Academy of Sciences** held in Washington, April 25 to 27, was of unusual public interest because many of the speakers discussed problems of human life.

Dr. Simon Flexner, dealt with epidemics from the experimental side. Dr. Jacques Loeb, Head of the Department of Experimental Biology, Rockefeller Institute, presented the results of two years of investigation of the physical and chemical behavior of proteins. Dr. F. G. Benedict gave an illustrated account of taking skin temperature of pachyderms at the Bronx Zoological Gardens. Professor E. N. Thorndike of Columbia University showed how the method of mental tests, hitherto used mostly in detecting the feebleminded, may be extended to distinguish the higher grades of human intelligence. Professor Raymond Pearl of Johns Hopkins University presented a paper on the Specific Forces of Mortality.

The New England Home Economics Association held its February meeting under the auspices of the Social Service Section, Margery Smith, Chairman.

Lucy H. Gillett, Superintendent Nutrition Bureau, Association for Improving the Condition of the Poor, New York City, gave a clear and convincing analysis of the training and opportunities for nutrition workers. The varied needs that must be met by the nutrition worker require a thorough knowledge of foods, their nutritive values, amounts, and costs, and their relation to certain diseases; a knowledge of hygiene, of sanitation, of bacteriology, of standards of living; a command of the principles of psychology, of child training, and of social problems; thorough training in statistical methods, and a love for research. Opportunities for the nutrition worker are increasing, and the calls are more numerous than can be answered. Rural demands are pushing, and this field calls for the broadest combination of mental, physical, and spiritual equipment. As an adviser in illness the nutrition worker is called upon to supplement the physician's service, and should stand on a par with him in skill and remuneration.

Ten minute talks followed Miss Gillett's address, showing how the Baby Hygiene Association, the neighborhood kitchen, the home demonstration agent, and the nutrition worker in industrial plants are achieving results. There are many fields, many needs, many methods, but one goal—healthy, efficient human beings.

The March program was arranged by the Teacher's Section under the subject, The Need for More Extended and Vital Instruction in Home Economics. Frank W. Wright from the State Board of Education, spoke upon the subject, Does Home Economics Teaching Function as it Should for the Girl of High School Age? He forcibly advised immediate riddance from school curricula of "the excess baggage." Public opinion was never so ready as now to accept home economics teaching, and this advantage should be seized. The time has come when, both figuratively and literally, home economics must be taken out of the basement and made to occupy the dignified position it deserves. It should be taught in every school, and made to function in the home.

Mrs. Calvin, out of her experience and surveys of home economics teaching, acknowledged that much of it falls far short of meeting the needs of the students. Better training is needed for teachers, and the course of study must be an all around course, based upon the needs of the home of today.

The discussion that followed laid emphasis upon time alllotment, methods, and credits.

The luncheon at the Hotel Brunswick attracted 108 persons. The after luncheon speakers were Mrs. Calvin; Mabel Bragg, Assistant Superintendent of Schools, Newton; and Agnes H. Craig, Supervisor of Home Economics, Springfield.

Mrs. Calvin made a plea for more uniformity in home economics standards as regards equipment, courses of study, and credit values.

Miss Bragg's work centers around the health of the individual, the question in all grades being "What do you need to live your best life today?" the answer being given by the formation of health habits, good manners, and social interests.

Miss Craig emphasized the importance of the right point of view of the layman and the educator. Each of these must be shown that home economics deals with better living, not with the mere performance of tasks; that applied science, art, and economics are to overcome drudgery; and that good citizenship requires the best of life and living.

State College, Brookings, S. D. Among the new courses for women introduced this year is one which prepares for the management and operation of tea rooms. The course requires of each student the actual management of a model tea room for one week. Under the management of the nine women enrolled this year the tea room has been so popular that it was impossible to accommodate all the students and faculty members who wished to patronize it.

The Fess Home Economics Amendment to the Vocational Education Act, was re-introduced in the Sixty-seventh Congress on April 11 and referred to the Committee on Education. Its new number is H. R. 21.

The proposed amendment will give more federal funds to the establishment of home economics classes in public schools. It will apportion moneys for home economics education on the basis of the total population of a state, thus doing away with one curious restriction in the original law, which apportioned the moneys on the basis of a state's urban population.

An important proviso of the new bill is the stipulation that part of the funds must go to the establishment of part-time and evening classes for workers over fourteen years of age who have entered upon employment. Such classes will mean opportunities for the housewife and the woman at work outside the home.

It is hoped that every home economics worker will take a personal interest in the passage of the bill. Let your senators and representatives know you are back of it. The Legislative Committee of the American Home Economics Association is counting on your coöperation.

American Extension Methods in France. Miss Ola Powell of the Office of Extension Work, South, of the United States Department of Agriculture, at the invitation of The American Committee for Devastated France, sailed in April for France. She will be associated for three months with Madame Lucile Devouge who, as a representative of the French Government, has been studying home demonstration work in this country. Miss Powell also expects to travel in other European countries before her return, for the purpose of studying conditions and securing ideas and suggestions that may be applied in rural extension work in this country.

The New York Society of Craftsmen announces a summer school July 5 to August 12, 1921, with courses in batik, block printing, dyeing, history of ornament, leather working, weaving. For further information address Charles E. Pellew, President New York Society of Craftsmen, 10 East 47th St., New York.

Teachers College, Columbia University, announces summer courses in economics and social science in relation to the home. Inquiries should be addressed to Professor B. R. Andrews.

An Institute of Child Hygiene and Nutrition, to be held at the School of Public Health, Louisville, Kentucky, June 6 to 18, will offer a course of intensive study in the diets of children of pre-school and school age, including school lunches; in clinics; and in the general everyday care of the child.

The course is open to home demonstration agents, nurses, social workers, teachers, mothers, physicians, and others interested in the welfare of the child.

Dr. Edith B. Lowry of the Bureau of Child Hygiene of the United States Public Health Service, and Dr. Annie Veech, Director of the Bureau of Child Hygiene for the State Board of Health of Kentucky, will conduct the Institute.

The University of Iowa announces a comprehensive series of courses to be given in the summer session for the training of teachers in nutrition and health of children. These courses are under the direction of the Department of Home Economics, with the cooperation of the Child Welfare Research Station, the Observational Schools, the Colleges of Medicine and Dentistry, the School of Public Health Nursing, and the Department of Public Health.

The Southern Home Ecomonics Association will meet at Nashville, Tennessee, June 9–11, with headquarters at the Hotel Hermitage. This meeting will be in the nature of a regional conference. Assemblies will be in the hotel assembly room and at Peabody College. An interesting program is in the making, and a large attendance is desired. Arrangements will be made for drives and picnics and as much open air as possible.